REMARKS

This is in full and timely response to the Office Action dated November 4, 2009.

Claims 4 and 11-38 are currently pending in this application, with claims 4, 11 and 33 being independent.

No new matter has been added.

Reexamination in light of the following remarks is respectfully requested.

Entry of amendment

This amendment *prima facie* places the case in condition for ***allowance***. Alternatively, it places this case in better condition for ***appeal***.

Accordingly, entry of this amendment is respectfully requested.

Prematureness

Applicant, seeking review of the *prematureness* of the final rejection within the Final Office Action, respectfully requests reconsideration of the finality of the Final Office Action for the reasons set forth hereinbelow. See M.P.E.P. §706.07(c).

At least for the following reasons, if the allowance of the claims is not forthcoming at the very least and a new ground of rejection made, then a ***new non-final Office Action*** is respectfully requested.

Petition

A Petition Under 37 C.F.R. §1.181 to Request Withdrawal of the Final Office Action has been previously filed.

Timely consideration of this Petition is respectfully requested.

Claim rejection under 35 U.S.C. §103

I. Claims 1, 5-7 and 10

While not conceding the propriety of this rejection and in order to advance the prosecution of the present application, claims 1, 5-7 and 10 have been canceled.

II. Claim 4

While not conceding the propriety of this rejection and in order to advance the prosecution of the present application, claim 4 has been placed into independent form.

Accordingly, ***no "further search and/or consideration" of amended claim 4*** is required.

Claim 4 is drawn to a manufacturing method of a master disc for an optical disc, comprising:

> a film forming step of forming an inorganic resist layer made of an incomplete oxide of a transition metal as a film onto a substrate; and
>
> a step of forming resist patterns including concave/convex shapes by exposing and developing said inorganic resist layer,

wherein in said film forming step, oxygen concentration of said inorganic resist layer is made different in its thickness direction,

wherein said oxygen concentration is increased toward the surface of said substrate from the surface of said inorganic resist layer,

wherein:

a single element or alloy of the transition metal, or an oxide of them is used as a target material,

said inorganic resist layer is formed as a film onto the substrate by a sputtering method using oxygen or nitrogen as a reactive gas, and

the oxygen concentration of said inorganic resist layer is made different in the thickness direction by changing at least either a film forming power or a reactive gas ratio.

A. Japanese Application Publication No. 2003-315998 (Kouchiyama'988)

Claim 4 is drawn to a method wherein, in said film forming step, oxygen concentration of said inorganic resist layer is made different in its thickness direction, and wherein said oxygen concentration is increased toward the surface of said substrate from the surface of said inorganic resist layer.

The Office Action ***readily admits*** that Kouchiyama'988 ***does not teach*** varying the oxygen concentration so that the concentration near the surface of the substrate is lower than the concentration at the surface of the resist.

Thus, Kouchiyama'988 fails to disclose, teach, or suggest a method wherein in said film forming step, oxygen concentration of said inorganic resist layer is made different in its thickness direction.

Likewise, Kouchiyama'988 fails to disclose, teach, or suggest a method wherein said oxygen concentration is increased toward the surface of said substrate from the surface of said inorganic resist layer.

Within claim 4, *the oxygen concentration of said inorganic resist layer is made different in the thickness direction by changing at least either a film forming power or a reactive gas ratio.*

However, Kouchiyama'988 ***fails*** to disclose that ***within a sputtering method***, *the oxygen concentration of the inorganic resist layer is made different in the thickness direction by changing at least either a film forming power or a reactive gas ratio.*

As a consequence, Kouchiyama'988 fails to disclose, teach, or suggest a method wherein:

> ***a single element or alloy of the transition metal, or an oxide of them is used as a target material,***
>
> ***said inorganic resist layer is formed as a film onto the substrate by a sputtering method using oxygen or nitrogen as a reactive gas, and***
>
> ***the oxygen concentration of said inorganic resist layer is made different in the thickness direction by changing at least either a film forming power or a reactive gas ratio.***

B. U.S. Patent No. 4,786,538 (Saito)

Saito arguably teaches that the heat treatment (annealing) applied to the *TeOx* film formed in accordance with the above-described film forming method is effective to further stabilize the film construction and can be used also in the present invention (Saito at column 3, line 66 to column 3, line 2).

These objects of the present invention are accomplished by an optical recording medium in which by a metal tellurium vapor passing through oxygen gas and/or inert gas formed into a plasma by a high frequency electric power, (a) a tellurium or tellurium suboxide (TeOx, $0 \leq x < 2$) layer and or (b) a tellurium dioxide (TeO_2) layer are laminated, or (a) a tellurium dioxide (TeO_2), (b) tellurium and/or a tellurium suboxide (TeOx, $0 \leq x < 2$) and (c) a tellurium dioxide (TeO_2) layers are laminated (Saito at column 2, lines 28-41).

However, the present claims include an incomplete oxide of a *transition metal*.

In this regard, the Office Action ***fails*** to show tellurium as being a transition metal.

Saito arguably teaches that it is further possible to incorporate a material having a great laser absorptivity such as Sb, Mo, Ge, Se, Bi, In, Sn etc. *in the TeOx film* (Saito at column 4, lines 7-9).

Nevertheless, Saito ***fails*** to disclose, teach, or suggest *an incomplete oxide of a transition metal*.

In this regard, the Office Action fails to show that tellurium and a transition metal are one in the same. Here, a review of any periodic table may reveal tellurium as being something other than a transition metal.

Regarding Example 3, Saito arguably discloses the following in the paragraph beginning at column 7, line 9.

> The device shown in FIG. 4 was used. Gas was discharged till the initial pressure P was 1×10^{-5} Torr, and oxygen gas was introduced to 4×10^{-4} Torr. High frequency power of frequency 13.56 MHz and 400 Watt was applied thereto to generate a plasma. ***Metal tellurium*** of purity 99.99% ***was melted and vaporized*** at 450° to 500° C and deposited on a glass substrate and on a PMMA substrate at vaporization speed of approx. 4 Å/sec. The thus formed film had a thickness of 0.01 μm and the composition of film was x=2.0 according to Auger electronic spectral method. Next, the ***high frequency power and vaporization speed were changed*** to 200 Watt and approx. 10 Å/sec, respectively. The thus formed film had a thickness of 0.1 μm and the composition of film was x=0.7. Subsequently, the initial film forming conditions were again restored to form the TeO_2 film to obtain a recording medium comprising a **substrate/$TeO_{2.0}$ /$TeO_{0.7}$ /$TeO_{2.0}$** (Examples).

Throughout, Saito ***fails*** to disclose, teach, or suggest the use of ***a sputtering method*** to form a film onto the substrate.

Instead, Saito arguably discloses that in the present invention, metal tellurium is vaporized by the ***ion plating method*** *under the atmosphere of oxygen gas and/or inert gas (which is sometimes generally merely referred to as "gas")* (Saito at column 3, lines 6-9).

Here, Saito ***fails*** to disclose, teach, or suggest the process parameters of the ***ion plating method*** being compatible with a sputtering process.

Thus, Saito ***fails*** to disclose that ***within a sputtering method***, *the oxygen concentration of the inorganic resist layer is made different in the thickness direction by changing at least either a film forming power or a reactive gas ratio.*

As a consequence, Saito fails to disclose, teach, or suggest a method wherein:

> ***a single element or alloy of the transition metal, or an oxide of them is used as a target material,***
>
> ***said inorganic resist layer is formed as a film onto the substrate by a sputtering method using oxygen or nitrogen as a reactive gas, and***
>
> ***the oxygen concentration of said inorganic resist layer is made different in the thickness direction by changing at least either a film forming power or a reactive gas ratio.***

The Office Action ***fails*** to show that the skilled artisan would have substituted the method of Kouchiyama'988 with the ion plating method of Saito.

But even if the Office Action shows that the skilled artisan would have substituted the method of Kouchiyama'988 with the ion plating method of Saito, the combination of Kouchiyama'988 and Saito ***fails*** to show a ***sputtering method*** wherein *the oxygen concentration of said inorganic resist layer is made different in the thickness direction by changing at least either a film forming power or a reactive gas ratio.*

In this regard, the Office Action ***fails*** to show that the process variables within the ion plating method of Saito would have been equally applicable to the method of Kouchiyama'988.

In view of the above, the Office Action fails to show why the skilled artisan would have referred to Saito for the features that are admittedly absent from within Kouchiyama'988.

C. U.S. Patent No. 4,916,048 (Yamada)

Yamada arguably discloses the following in the paragraph beginning at column 4, line 44.

> The thin film photosensitive layer 12 is formed on the base 11 by a ***vacuum deposition or sputtering method***. This photosensitive layer 12 comprises a first element selected from a group of metals or semimetals, a second element of at least one, which is different from the first element, selected from the group of Te, Ge, Sn, Al, Ti, V, Cr, Mn, Fe, Co, Ni, Cu, Zn, Ga, Mo, Rh, Pd, Ag, Cd, In, Ta, W, Pt, Au, Tl, Pb, Si, Sb, Bi, ***and an oxygen element***, wherein at least part of the oxygen element is bonded with the first element to form its oxide, and the ratio x of the total number of atoms of the oxygen element to that of first element, assuming the maximum valence of the first element in a stable oxide state to be n, satisfies the relation of $0<x<n/2$. In addition, at least part of the second element exists in a non-oxide state. Examples of the first element may include Te, Sb, Bi, Si, Ge, Sn, Pb, In, Tl, Mo and W.

In the various embodiments, said *first element is one selected from the group of Te, Sb, Bi, Si, Ge, Sn, Pb, In, Tl, Mo and W* (Yamada at column 2, lines 56-58).

However, Yamada fails to disclose, teach, or suggest an incomplete oxide of a transition metal.

The Office Action seems to conclude that the oxygen content in an oxide of tellurium and an oxide of either tungsten or molybdenum would likely produce the same results (Office Action at page 3).

However, this contention appears to be conclusory at best since the Office Action ***fails*** to show that tellurium and a transition metal are one in the same.

Instead, a review of any periodic table may reveal tellurium as being something other than a transition metal.

Within claim 4, *the oxygen concentration of said inorganic resist layer is made different in the thickness direction by changing at least either a film forming power or a reactive gas ratio.*

However, Yamada ***fails*** to disclose that ***within a sputtering method***, *the oxygen concentration of the inorganic resist layer is made different in the thickness direction by changing at least either a film forming power or a reactive gas ratio.*

As a consequence, Yamada fails to disclose, teach, or suggest a method wherein:

> ***a single element or alloy of the transition metal, or an oxide of them is used as a target material,***
>
> ***said inorganic resist layer is formed as a film onto the substrate by a sputtering method using oxygen or nitrogen as a reactive gas, and***
>
> ***the oxygen concentration of said inorganic resist layer is made different in the thickness direction by changing at least either a film forming power or a reactive gas ratio.***

As a result, the Office Action ***fails*** to show why the skilled artisan would have referred to Yamada for the features that are admittedly absent from within Kouchiyama'988.

D. Japanese Application Publication No. 2001-344826 (Lee)

Paragraph [0008] in the machine translation of Lee arguably discloses that the laser of different power Pw1and Pw2 cuts this photoresist 103.

However, Lee ***fails*** to disclose, teach, or suggest an incomplete oxide of a transition metal.

Moreover, Lee ***fails*** to disclose that ***within a sputtering method***, *the oxygen concentration of the inorganic resist layer is made different in the thickness direction by changing at least either a film forming power or a reactive gas ratio.*

As a consequence, Yamada fails to disclose, teach, or suggest a method wherein:

> ***a single element or alloy of the transition metal, or an oxide of them is used as a target material,***
>
> ***said inorganic resist layer is formed as a film onto the substrate by a sputtering method using oxygen or nitrogen as a reactive gas, and***
>
> ***the oxygen concentration of said inorganic resist layer is made different in the thickness direction by changing at least either a film forming power or a reactive gas ratio.***

As a result, the Office Action ***fails*** to show why the skilled artisan would have referred to Lee for the features that are admittedly absent from within Kouchiyama'988.

Withdrawal of this rejection is respectfully requested.

Newly added claims

I. Claims 11-32

Claim 12-32 are dependent upon claim 11. Claim 11 is drawn to a manufacturing method of a master disc for an optical disc, the method comprising:

> sputtering a target material onto a substrate, said target material on substrate forming an inorganic resist layer;
>
> changing oxygen concentration of said inorganic resist layer in a thickness direction,
>
> wherein adjustment of a process parameter during the sputtering step changes said oxygen concentration.

Kouchiyama'988, Saito, Lee, and Yamada, either individually or as a whole, fail to disclose, teach, or suggest a method wherein adjustment of a process parameter during the sputtering step changes said oxygen concentration.

II. Claims 33-38

Claims 34-38 are dependent upon claim 33. Claim 33 is drawn to a master disc for an optical disc, the master disc comprising:

> an inorganic resist layer made of an incomplete oxide of a transition metal, said inorganic resist layer including a second layer between a first layer and a third layer,
>
> wherein said first layer has a first oxygen concentration, said second layer has a second oxygen concentration differing from said first oxygen concentration, and said

third layer has a third oxygen concentration differing from said first and second oxygen concentrations.

Kouchiyama'988, Saito, Lee, and Yamada, either individually or as a whole, fail to disclose, teach, or suggest a master disc wherein said first layer has a first oxygen concentration, said second layer has a second oxygen concentration differing from said first oxygen concentration, and said third layer has a third oxygen concentration differing from said first and second oxygen concentrations.

Allowance of the claims is respectfully requested.

Official Notice

There is no concession as to the veracity of Official Notice, if taken in any Office Action.

An affidavit or document should be provided in support of any Official Notice taken. 37 C.F.R. §1.104(d)(2), M.P.E.P. § 2144.03. See also, *Ex parte Natale*, 11 USPQ2d 1222, 1227-1228 (Bd. Pat. App. & Int. 1989)(failure to provide any objective evidence to support the challenged use of Official Notice constitutes clear and reversible error).

Extensions of time

Please treat any concurrent or future reply, requiring a petition for an extension of time under 37 C.F.R. §1.136, as incorporating a petition for extension of time for the appropriate length of time.

The Commissioner is hereby authorized to charge all required fees, fees under 37 C.F.R. §1.17, or all required extension of time fees.

Fees-general authorization

The Commissioner is hereby authorized to charge any deficiency in fees filed, asserted to be filed, or which should have been filed herewith (or with any paper hereafter filed in this application by this firm).

If any fee is required or any overpayment made, the Commissioner is hereby authorized to charge the fee or credit the overpayment to Deposit Account # 18-0013.

Conclusion

This response is believed to be a complete response to the Office Action.

Applicants reserve the right to set forth further arguments supporting the patentability of their claims, including the separate patentability of the dependent claims not explicitly addressed herein, in future papers.

For the foregoing reasons, all the claims now pending in the present application are allowable, and the present application is in condition for allowance.

Accordingly, favorable reexamination and reconsideration of the application in light of the remarks is courteously solicited.

If the Examiner has any comments or suggestions that could place this application in even better form, the Examiner is requested to telephone Brian K. Dutton, Reg. No. 47,255, at 202-955-8753.

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Respectfully submitted,

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